

REMARKS

As an initial matter, Applicant thanks Examiner for the courteous assistance provided in the interview held June 29, 2004. Applicant is sending a separate request for drawing correction. Applicant is in the process of preparing entirely new formal drawings to incorporate all of the approved corrections and will send them in a supplemental amendment by the end of July. The specification has been amended in compliance with the Examiner's instructions regarding new matter. Applicant has also amended the specification to conform to the amended claims in accordance with sections 6 and 9 of the office action. Applicant has amended the claims to correct informalities and to better define the invention.

All of the claims as amended require that the preform be woven and that the ends of the legs and base taper in thickness. All of the claims require that the pressure intensifiers have straight sides in a single plane, the straight sides extending past the tapered ends. Clearances exist between the tapered ends 17 and the inner sides of the pressure intensifiers 18.

Having tapered ends on the woven preforms helps to avoid delamination of the perform from the components. Applicant has learned that an abrupt thick end has more tendency to delaminate than an end that tapers in thickness. Because the preform is woven, Applicant accomplishes the taper by uniformly reducing the number of interlocking layers within the weave pattern at a selected point to the ends. The weaving machine will thus weave a portion of the base and each leg in a thicker pattern with more layers, and gradually reduce the thickness as the pattern approaches the ends.

In the prior art of over-presses or pressure intensifiers in general, the pressure intensifier is machined to precisely conform to the surface that it will press against. In the context of a tapered end, this would require precise machining of the pressure intensifier. Also, the tapered ends of woven performs are not uniform. The preforms vary in size. Consequently, expensive machining of the pressure intensifiers would be necessary if one wished to conform the inner sides of the pressure intensifiers 18 (Figure 4) to the tapered sections 17. Also, pressure intensifiers have a finite life, therefore continual replacements would be necessary.

Applicant has determined that such is not necessary. Due to the compliance of the pressure intensifiers 18 and the compliance of the preforms 14, the inner sides of the pressure

intensifiers can remain straight. During bonding, conformance will occur as explained in the specification on page 12, lines 22-25.

The references do not show a woven preform having tapered ends. The references do not show a pressure intensifier engaging a woven preform to press it against tooling or another component during curing, wherein the pressure intensifier has straight sides in a single plane and a woven preform has tapered ends, thus defining clearances.

The references do not show this step of the invention. Stiffeners 5 in Duffy are not woven preforms. Rather, stiffeners 5 (Figure 5) comprise resin injection molded members (page 5, 4th line). Also, these stiffeners are not located between two components to bond the components together.

In Mueller, adhesive strips 27, 27' are not woven preform strips. Rather, they are formed by successively laying up layers of fiber composite material, each layer having a different length until reaching the thickest portion (column 4, lines 14-18). Extensions 6, 7 of Morris are tapered, but these channel members are not woven preforms. Rather, the channel members comprise fiber reinforced plastic material (column 2, lines 12-13).

Pressure intensifier 26 of Sloman does not extend past the ends of prepreg layup 10. Prepreg layup 10 does not have edges that are tapered in thickness. Pressure intensifier 26 is not used to bond prepreg layup 10 to another component, rather it is being used to mold prepreg layup 10 in a desired shape defined by tool 12. Abildskov shows a woven preform, but does not teach to weave the layers with a decreasing thickness toward the ends. Workpiece 6 of Tsuchiya does not have tapered ends and is not a woven preform. Rather, it is a carbon fiber-reinforced plastic that is being molded in a die process using dies 3 and press 10. It is not a preform that is used to bond two components together.

Breuer does not show a woven preform. It shows stiffening profile members 7 laid alongside and in contact with a core blank 5. Stiffening members 7 are fiber-reinforced composite material (column 6, lines 19-21). There is no suggestion that they could be woven and have tapered ends. Bersuch and Sheahen do not disclose pressure intensifiers, or woven preforms with tapered ends.

It is respectfully submitted that the claims are now in condition for allowance and favorable action is respectfully requested.

Respectfully submitted,

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